



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/648,097

08/26/2003

Phone Lin

39524.7700

3151

20322 7590 05/23/2007
SNELL & WILMER L.L.P. (Main)
400 EAST VAN BUREN
ONE ARIZONA CENTER
PHOENIX, AZ 85004-2202

EXAMINER

SINKANTARAKORN, PAWARIS

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

05/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

SK

Office Action Summary	Application No. 10/648,097	Applicant(s) LIN ET AL.	
	Examiner Pao Sinkantarakorn	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,13 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 3,4,6-12 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 - Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 - Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some * c) ☐ None of:
 - 1. ☒ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because none of the parts in figures 1A-8 is labeled descriptively. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37

CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Objections

3. Claims 10-12 are objected to because of the following informalities:

Regarding claim 10 step (q), the letter "f" should be rewritten as ---if---.

Claims 11 and 12 are then objected because they depend on claim 10.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

Art Unit: 2616

3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2, 5, 13, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bautz et al. (US 2002/0067706) in view of Lee (US 2002/0167926).

Regarding claims 1 and 17, Bautz et al. disclose a method for frame synchronization in a wireless communication network system, said wireless communication network system including a radio network controller, a first base station, a second base station, and a mobile unit (see Fig. 1 and paragraph 17, switch SW, base stations BS1 and BS2, and mobile terminals MT), wherein said radio network controller transmits a plurality of data frames to said first base station and said second base station, a first link exists between said mobile unit and said first base station (see paragraphs 17 and 22, switches are connected to the first and second base stations via communication paths and the switches send numbered segments to the first base station via path P1 and send numbered segments to the second base station via path P2), said first base station transmits received data frames to said mobile unit through said first link (see paragraph 18, the mobile terminal communicates with BS1), said second base station includes a register for storing received data frames, said register

Art Unit: 2616

has a judging storage capacity (see paragraphs 17 and 22, BS2 has a storage means BF for storing the numbered segments sent from the switches).

Bautz et al. do not disclose the method for determining whether a number of said plurality of data frames received by said second base station is larger than said judging storage capacity; if said number of said plurality of data frames is larger than said judging storage capacity, calculating an X by subtracting said judging storage capacity from said number of said plurality of data frames; and deleting X of data frames from said register.

However, the invention of Lee from the same or similar fields of endeavor discloses a base station with storage, wherein X packets are discarded due to overflow of the buffer, X being the number of packets that exceeds the storage capacity (see paragraph 88, the storage capacity is 30 packets, but the base station receives 140 packets, therefore the base station discards 110 packets, which is the number of packets that exceeds the storage capacity).

Thus, it would have been obvious to the person of ordinary skill in the art to implement a base station with storage, wherein X packets are discarded due to overflow of the buffer, X being the number of packets that exceeds the storage capacity as taught by Lee into the mobile communication system of Bautz et al.

The motivation for implementing a base station with storage, wherein X packets are discarded due to overflow of the buffer, X being the number of packets that exceeds the storage capacity is that it increases the efficiency of the data transmission in the mobile communications network.

Regarding claim 2, Bautz et al. disclose the method, further comprising:

detecting a link quality of the first link (see paragraph 26, means for detecting the need of handover, wherein the main criterion for handover is the quality of both up-link and down-link transmission); and

determining whether the link quality is lower than a preset value (see paragraphs 18 and 26, the request for handover is transmitted if the quality of transmission is below a preset value);

regarding claim 5, if the link quality is lower than the preset value (see paragraphs 18 and 26, the request for handover is transmitted if the quality of transmission is below a preset value), calculating an N equal to a number of data frames not yet deleted from the second base station and already received by the mobile unit (see paragraph 23, the mobile terminal requests the segment SX from the second base station, the second base station then knows that the last segment the mobile terminal received is segment S(X-1) and the second base station calculates the number of segments stored in the buffer and uses the result to transmit the segment SX to the mobile terminal).

Regarding claims 13 and 18, Bautz et al. disclose a method for frame synchronization in a wireless communication network system, said wireless communication network system including a radio network controller, a first base station, a second base station, and a mobile unit (see Fig. 1 and paragraph 17, switch SW, base stations BS1 and BS2, and mobile terminals MT), wherein said radio network controller transmits a plurality of data frames to said first base station and said second

Art Unit: 2616

base station, a first link exists between said mobile unit and said first base station(see paragraphs 17 and 22, switches are connected to the first and second base stations via communication paths and the switches send numbered segments to the first base station via path P1 and send numbered segments to the second base station via path P2), said first base station transmits received data frames to said mobile unit through said first link (see paragraph 18, the mobile terminal communicates with BS1), said second base station includes a register for storing received data frames, said register has a judging storage capacity (see paragraphs 17 and 22, BS2 has a storage means BF for storing the numbered segments sent from the switches), the method comprising:

(d) detecting a link quality of the first link (see paragraph 26, means for detecting the need of handover, wherein the main criterion for handover is the quality of both up-link and down-link transmission); and

(e) determining whether the link quality is lower than a preset value (see paragraphs 18 and 26, the request for handover is transmitted if the quality of transmission is below a preset value);

(f) if the link quality is lower than the preset value (see paragraphs 18 and 26, the request for handover is transmitted if the quality of transmission is below a preset value), calculating an N equal to a number of data frames not yet deleted from the second base station and already received by the mobile unit (see paragraph 23, the mobile terminal requests the segment SX from the second base station, the second base station then knows that the last segment the mobile terminal received is segment

S(X-1) and the second base station calculates the number of segments stored in the buffer and uses the result to transmit the segment SX to the mobile terminal).

Bautz et al. do not disclose the method for (a) determining whether a number of said plurality of data frames received by said second base station is larger than said judging storage capacity; (b) if said number of said plurality of data frames is larger than said judging storage capacity, calculating an X by subtracting said judging storage capacity from said number of said plurality of data frames; and (c) deleting X of data frames from said register.

However, the invention of Lee from the same or similar fields of endeavor discloses a base station with storage, wherein X packets are discarded due to overflow of the buffer, X being the number of packets that exceeds the storage capacity (see paragraph 88, the storage capacity is 30 packets, but the base station receives 140 packets, therefore the base station discards 110 packets, which is the number of packets that exceeds the storage capacity).

Thus, it would have been obvious to the person of ordinary skill in the art to implement a base station with storage, wherein X packets are discarded due to overflow of the buffer, X being the number of packets that exceeds the storage capacity as taught by Lee into the mobile communication system of Bautz et al.

The motivation for implementing a base station with storage, wherein X packets are discarded due to overflow of the buffer, X being the number of packets that exceeds the storage capacity is that it increases the efficiency of the data transmission in the mobile communications network.

Art Unit: 2616

Bautz et al. also do not disclose the method for (g) determining whether the N is larger than zero; and (h) if the N is larger than zero, deleting N of data frames from the register. However, it is well known in the art at the time of the invention to determine if N is larger than zero and delete N number of data frames from the register because once the mobile terminal requests the segment SX from the second base station, the second base station knows which segment is to be sent next; therefore, the second base station knows which segment is already received by the mobile terminal and deletes those segments from the register.

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the method for (g) determining whether the N is larger than zero; and (h) if the N is larger than zero, deleting N of data frames from the register into the mobile communication system of Bautz et al.

The motivation for implementing the method for (g) determining whether the N is larger than zero; and (h) if the N is larger than zero, deleting N of data frames from the register is that it reduces the overflow problem in memory resided in base stations.

Regarding claim 15, Bautz et al. disclose all the subject matter of the claimed invention except the data frames are stored in the register in a sequence. However, it is well known in the art that FIFO buffer is widely used to store data and manage data transmission by first-in-first-out process.

Thus, it would have been obvious to the person of ordinary skill in the art to implement a FIFO buffer in the base stations into the mobile communication system of Bautz et al.

The motivation for implementing the FIFO buffer in the base stations is that it increases the efficiency of data transmission and management.

Regarding claim 16, Bautz et al. disclose the method comprising breaking off the first link, and choosing the second base station to set up a second link between the mobile unit and the second base station (see paragraph 18).

Allowable Subject Matter

8. Claims 3, 4, 6-12, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mitts et al. (US 5,940,371) and Sagfors (US 2004/0218617) are cited to show systems/methods considered pertinent to the claimed invention.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pao Sinkantarakorn whose telephone number is 571-270-1424. The examiner can normally be reached on Monday-Thursday 9:00am-3:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PS



RICKY Q. NGO
SUPERVISORY PATENT EXAMINER